



Environmental Science Center

Environmental Management System (EMS)

Introduction

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ISO Standards

- Facilitate global trade through voluntary, private sector, consensus standards (e.g. ISO 200 photo film)
- Over 100 countries, since 1947, out of Geneva
- The American National Standards Institute (ANSI) represents the U.S.A.
- International technical committees (e.g. TC 207) develop standards
- ISO 14000 concept proposed by UNCED and WBCSD to ISO in 1991
- Endorsed by international Strategic Advisory Group on Environment (SAGE) in 1992
- Approved by ISO's Technical Management Board in January 1993

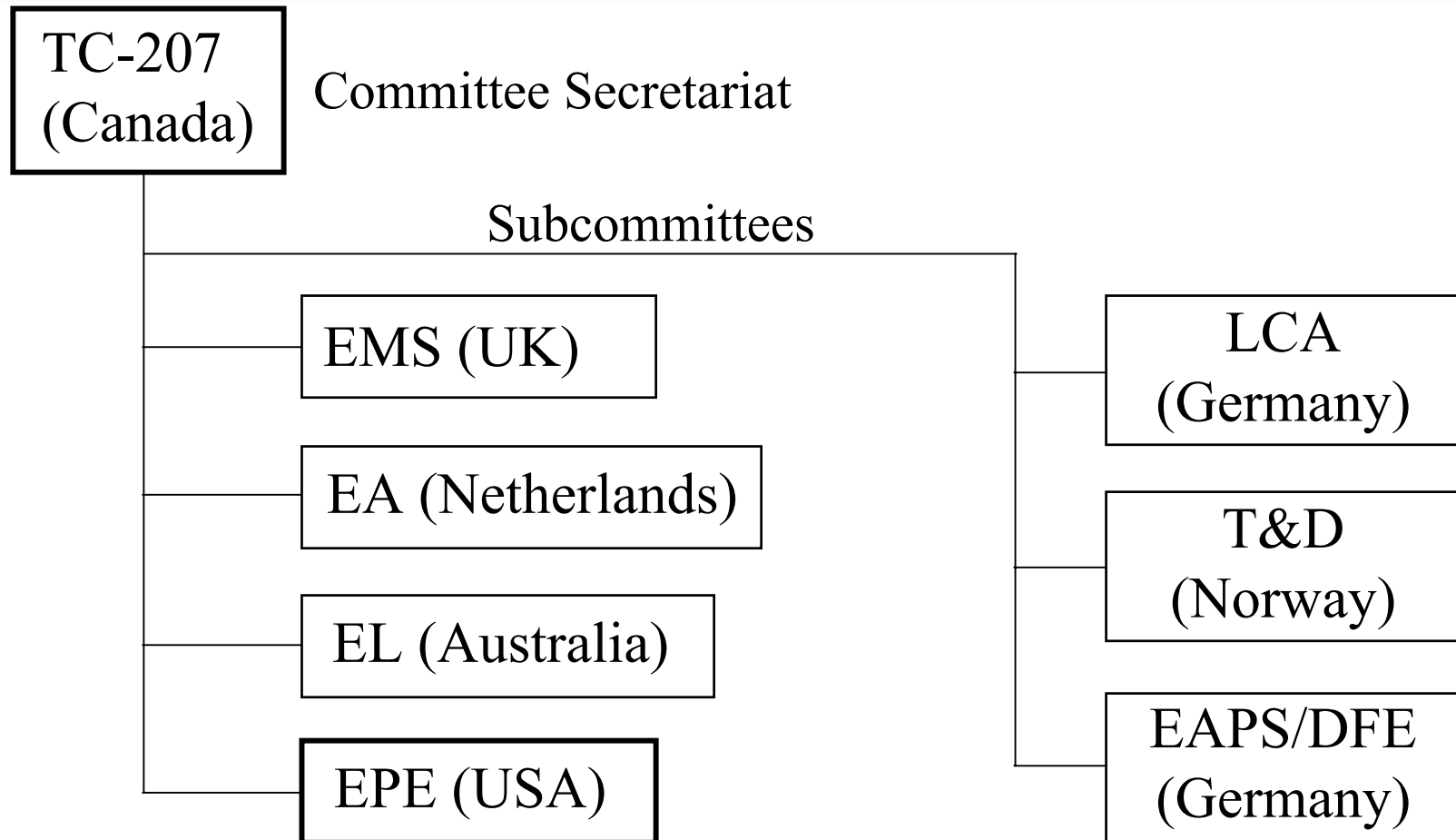
ISO/TC 207 Scope

The Scope of ISO/TC 207 is standardization in the field of environmental management tools and systems

Excluded:

- Test methods for pollutants which are the responsibility of ISO/TC 146 (Air Quality), ISO/TC 147 (Water Quality), ISO/TC 90 (Soil Quality), and ISO/TC 43 (Acoustics);
- Setting limit values regarding pollutants or effluents;
- Setting Environmental Performance Levels;
- Standardization of products.

TC Leadership Responsibilities



Environmental Management ISO 14000

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graph TD; A[Environmental Management ISO 14000] --> B[ENVIRONMENTAL MANAGEMENT SYSTEM]; A --> C[LIFE CYCLE ASSESSMENT]; B --> D[Environmental Performance Evaluation]; B --> E[Environmental Auditing]; C --> F[Environmental Labeling]; C --> G[Environmental Aspects in Product Standards];
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ENVIRONMENTAL MANAGEMENT SYSTEM

Environmental
Performance
Evaluation

Environmental
Auditing

ORGANIZATION EVALUATION

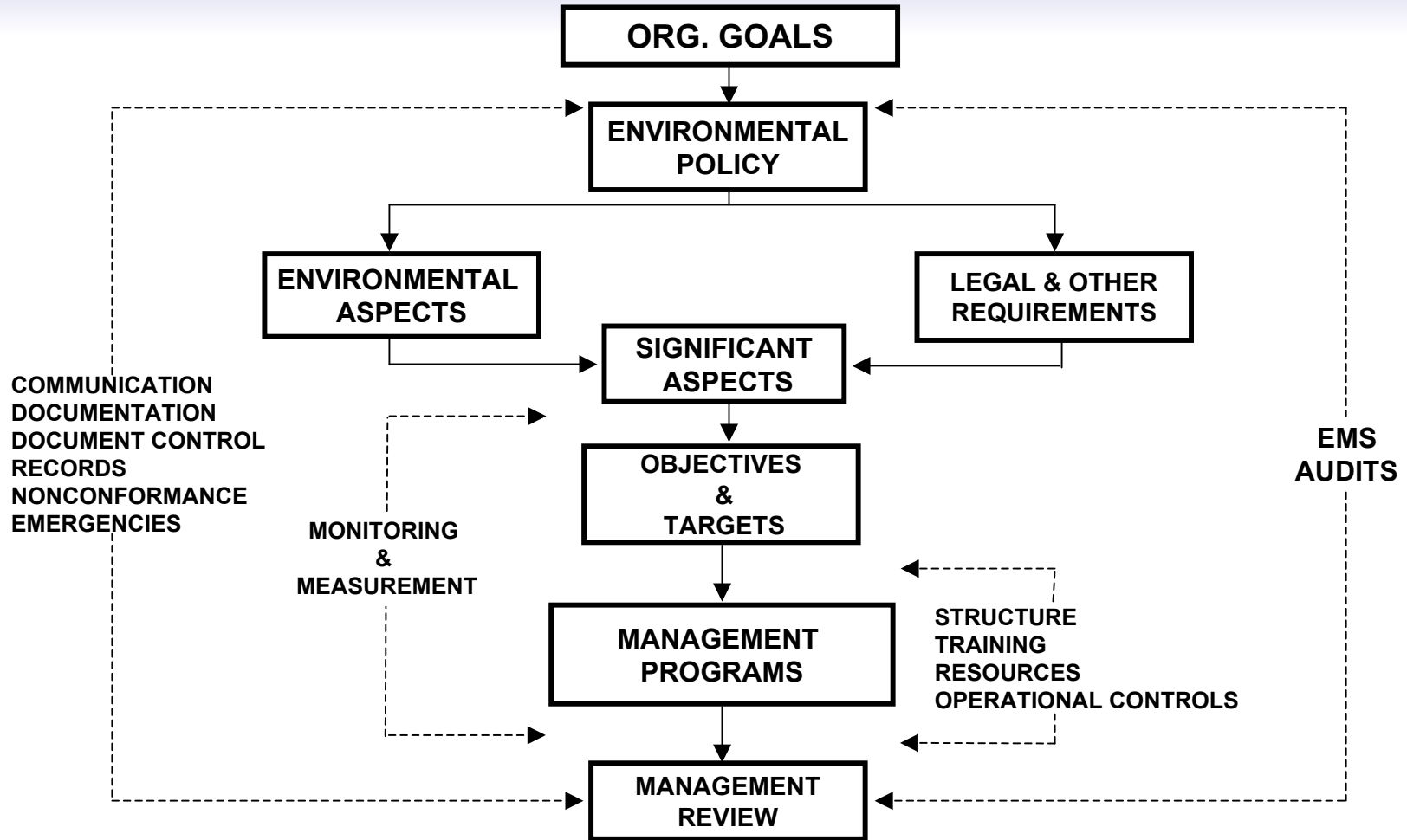
LIFE CYCLE ASSESSMENT

Environmental
Labeling

Environmental
Aspects in
Product
Standards

PRODUCT EVALUATION

ISO 14001 Framework



Benefits to Consider

- Provides a management framework
- Promotes organizational culture change
- Provides for conformance certification
- Focuses on process management
- Results in operational efficiencies
- Promotes pollution prevention
- Promotes “beyond regulations” thinking
- Promotes integration throughout operations
- Focuses on proactive strategic planning
- Promotes global trade
- Operationalizes “sustainable development”



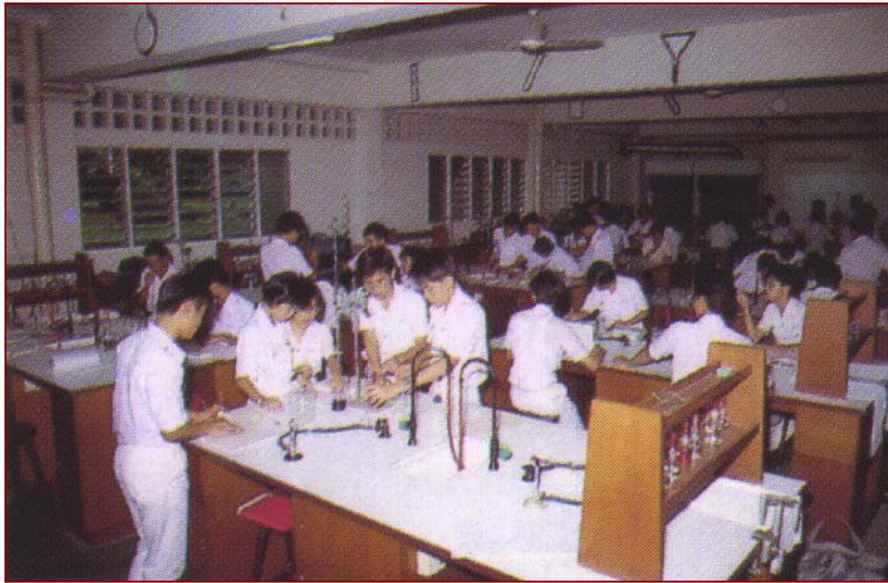
What is an EMS?

- It is a management framework to raise awareness and institute actions throughout the organization
- That makes environmental care a natural part of everyone's job
- In time, it develops an environmental culture just like the *safety* culture
- Everyone can do it naturally because it makes sense, and is a benefit to each individual as well as to the company

What is an EMS?

- Systematic approach to environmental care in organizations
- Similar to the way we get things done
 - Assess what needs doing
 - Set specific objectives
 - Create action plans to accomplish objectives
 - Allocate resources
 - Assign responsibility and authority
 - Check
 - Correct
 - Improve

Why is this Happening Now?



Why is this Happening Now?

- EMS ideas have long history, but commitment was made in 1992 UNCED in Rio de Janeiro, Brazil
- UN Conference on Environment and Development (UNCED)
 - Ozone depletion
 - Endangered species
 - Forests
 - Oceans
 - Global climate
 - Population growth
 - Consumption

Emergence of New Approaches to Environmental Protection

- **Voluntary initiatives**
 - Green lights
 - 33/50 Toxics reduction
 - OSHA's VPP
- **Codes of conduct**
 - CERES principles
 - ICC Charter for Sustainable Development
 - CMA Responsible Care
 - Agenda 21 (UNCSD)
- **Systems management**
 - Integration
 - Consistent process
 - Employee involvement & responsibility
 - Line management accountability
 - Top management leadership & visibility

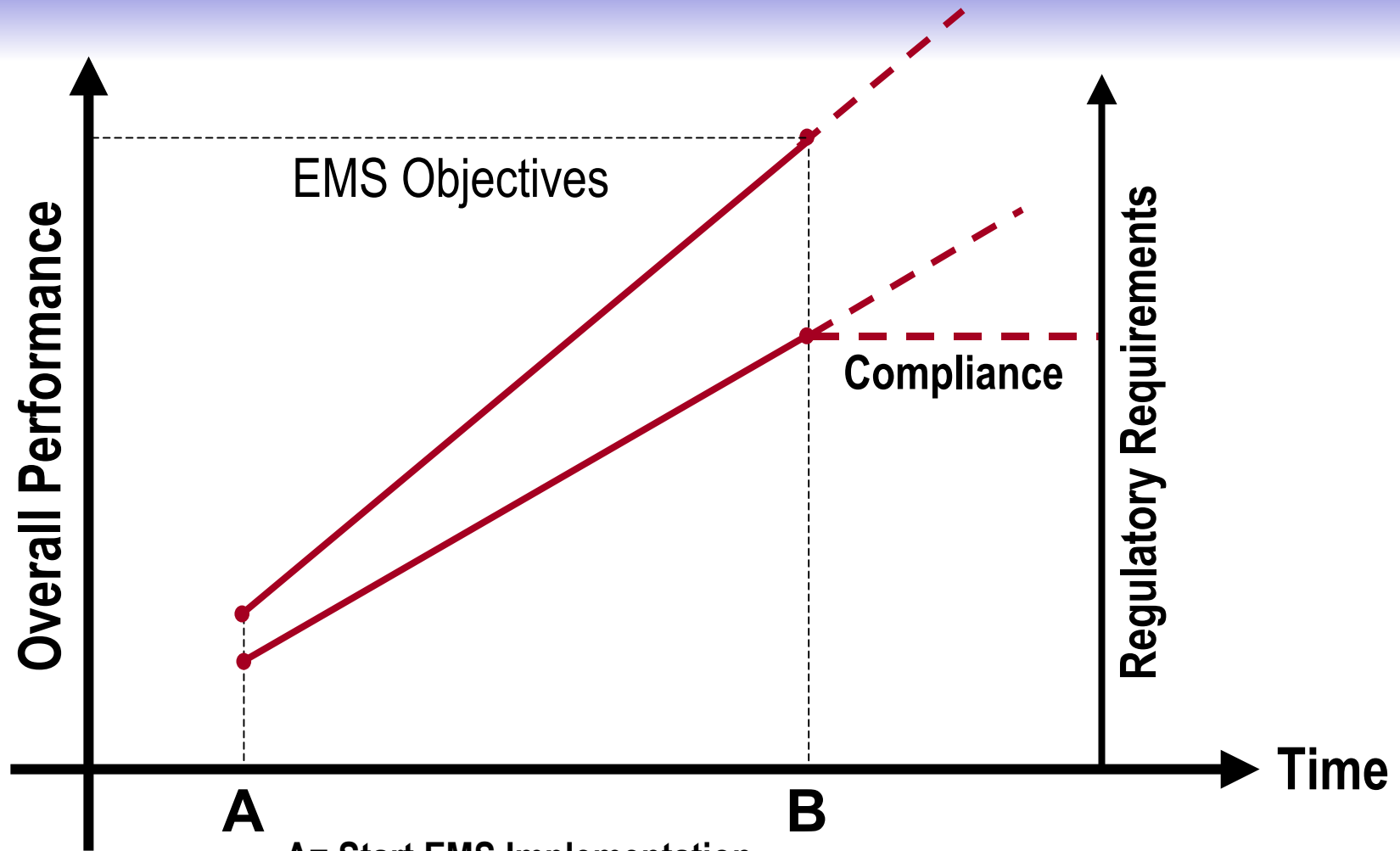
ISO 14001 Principles

- Focus on continual improvement of structural capacity to
 - Address compliance
 - Improve performance
 - Achieve objectives
- Integration with other systems
- Employee involvement
- Management visibility and leadership
- Preference for prevention
- Complementarity to national regs

Continual Improvement Under ISO 14001

- **Based on Continual Improvement of Structural Capacity**
 - To Address Compliance
 - To Improve Performance
 - To Achieve Objectives
- **Driven by Periodic Management Reviews**
 - Top Management
 - Data From EMS Audits, Monitoring, Measurement and Compliance Checks
 - Decide on Changes to EMS (e.g., Policy, Procedures, Resources, etc.)
- **Top Management**
 - Is Visible
 - Determines Effectiveness
 - Orders Changes

Performance Improvement



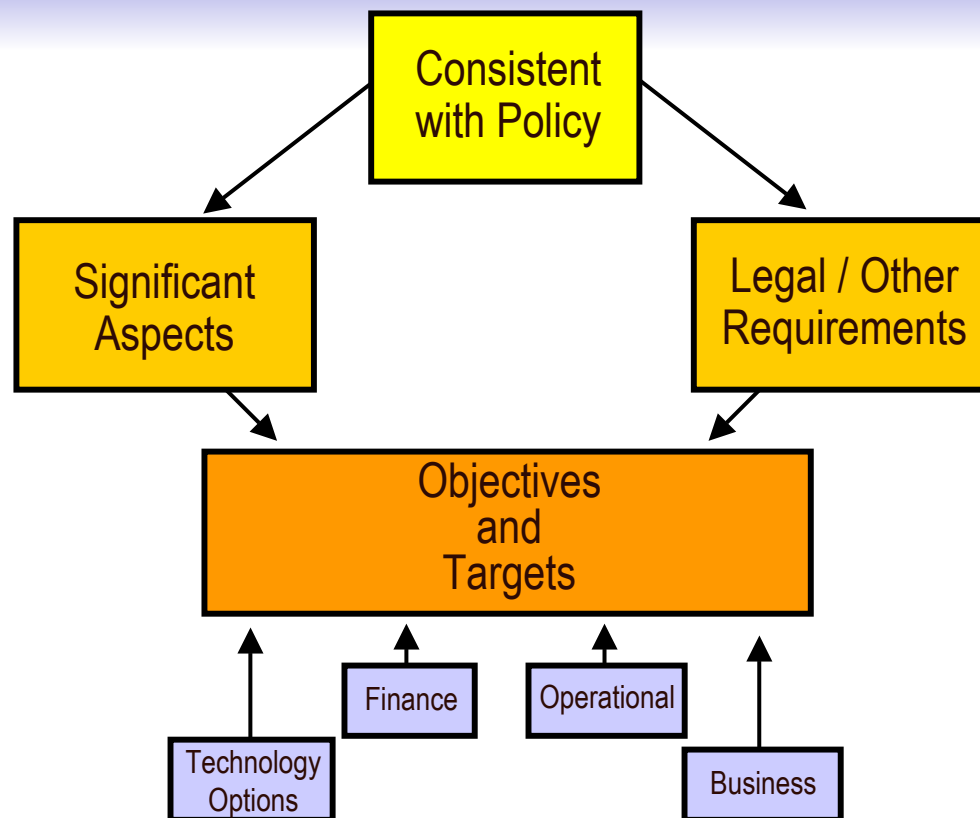
A= Start EMS Implementation

B= Achievement of Objectives

Set Objectives and Targets

Objectives

- Reduce energy use by 30% in 1999
- Improve compliance with wastewater discharge permit limits in 1999
- Reduce use of hazardous chemicals by 40% in 1999



Targets

- Reduce electricity use by 10% in maintenance
- Reduce exceedences by 50%
- Reduce use of high-VOC paints by 25% and, of herbicides by 60%

USEPA Environmental Science Center Commitments

- Integrate Environmental Stewardship into all facets of our Operation
- Manage Programs in a manner that Protects....
- Comply fully with the Letter and Spirit of all....
- To Consider Environmental factors....when making Planning, Purchasing and Operating Decisions.
- To Improve Environmental Management



USEPA Environmental Science Center Commitments

- To Provide Training and Educate Employees
- To Monitor, Prevent Pollution and Use Energy Efficiently
- To Maintain and Improve Grounds, Work Cooperatively with Local Community, and Communicate This Policy



Why is the Environmental Science Center (ESC) Doing an EMS?

- Executive Order # 13148
- ESC Will serve as Pilot for Other EPA Labs
- ESC Wants to Demonstrate Validity of EMS Approach
- ESC Wants to Distinguish itself within EPA
- ESC Wants to Broaden Employee Involvement
- ESC Aspires to Highest Levels of Environmental Care in new State-of-the-Art Facility



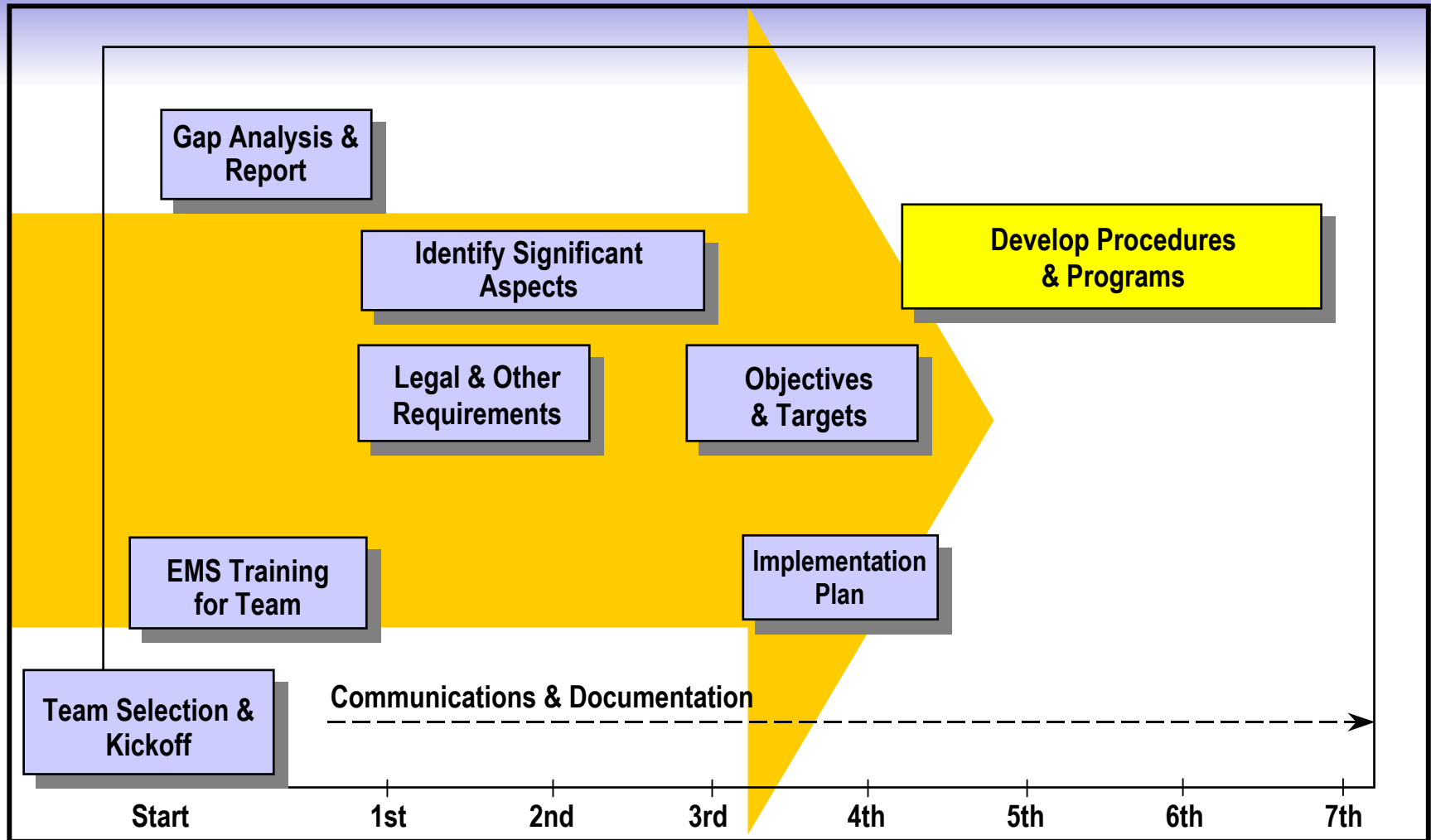
Why is the Environmental Science Center (ESC) Doing an EMS?

- ESC Wants to Pursue Cost Savings, Improved Safety, Better Interaction with Community/Stakeholders, Reduced Non-Compliances
- ESC Wants to be a Good Neighbor

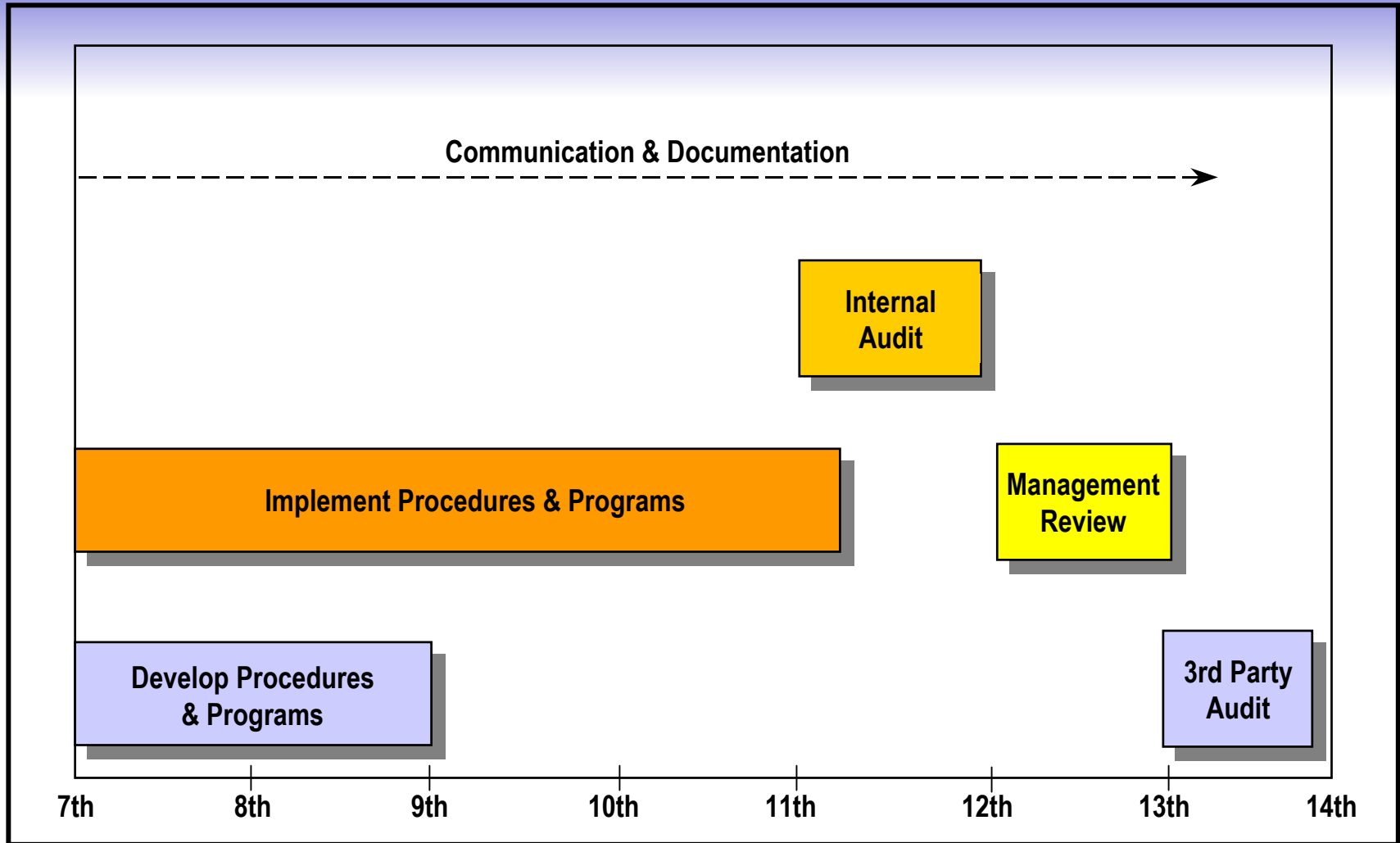
How Will EMS Be Developed and Implemented at ESC?

- Top management commitment
- EMS implementation team
- Develop procedures and programs
- Implement through management structure
- Training, communication, awareness

EMS Implementation Timeline (First 7 Months)



EMS Implementation Timeline (Second 7 Months)



Employee Involvement During Development of EMS

- Aspect Identification
- Setting Objectives and Targets
- Creation of Operational Procedures
- Training
- Specification of Operational Controls
- Selecting Performance Indicators

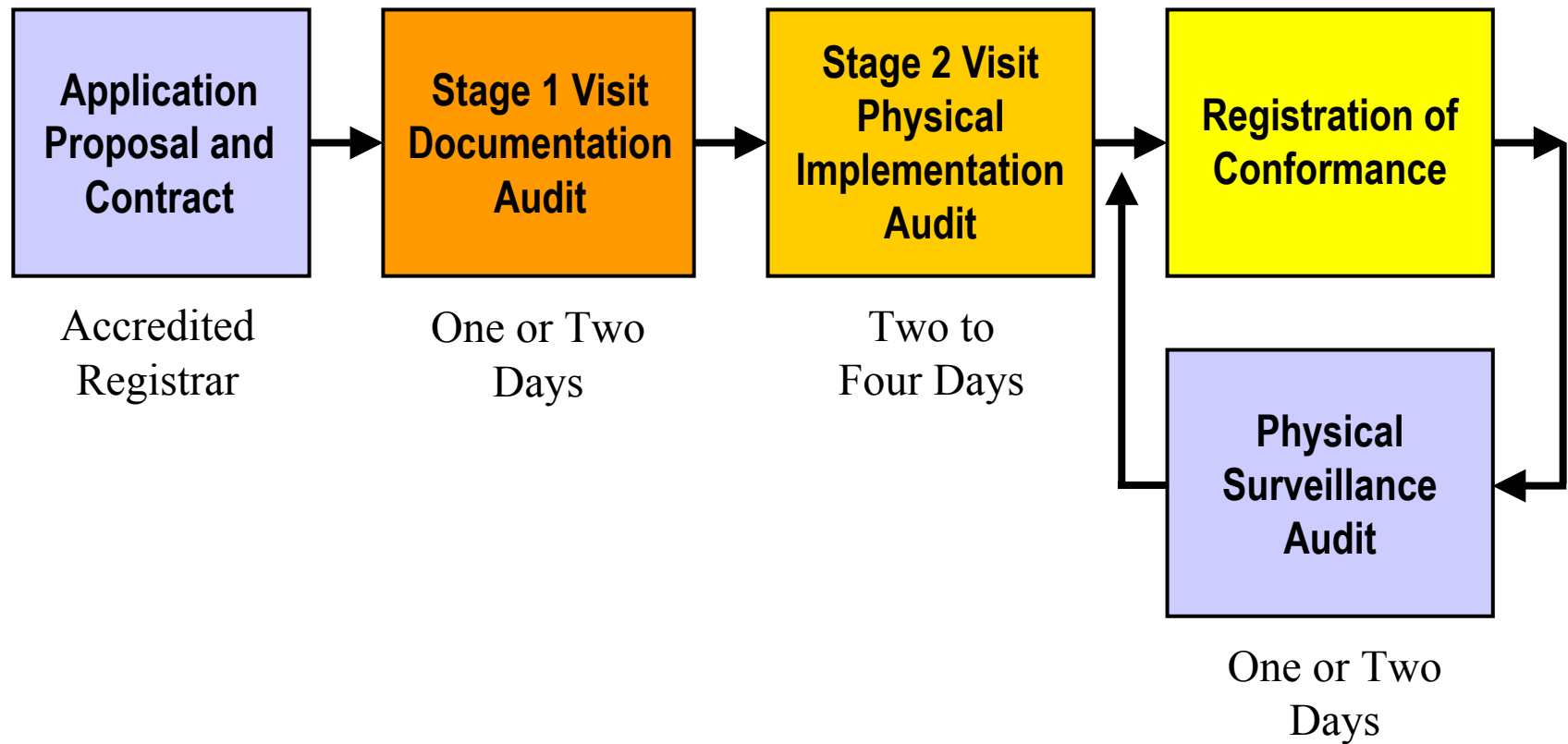
Employee Participation in the Implemented EMS

- Know Significant Aspects and Regulatory Requirements Associated with Work Duties
- Know Essence of Environmental Policy
- Know Objectives and Targets of Pertinent Significant Aspects
- Have Proper Training
- Execute Pertinent Programs and Operational Controls
- Learn and Follow the Procedures to Protect the Environment and Conserve Resources

Employee Participation in the Implemented EMS

- Know what can happen if procedures are not followed
- Be prepared to take action in emergencies
- Think about Environmental actions outside work
- Use your own common sense

ISO 14001 Registration Process



What ISO 14001 Implies for Organizations

- Accepting responsibility
- Taking control
- Actualizing potential for
 - Efficiencies
 - Savings
 - Avoiding liabilities, embarrassments
- Defining terms of success
- Fostering understanding, esprit and commitment
- Changing culture
- Learning to change

Whom am I Doing this for and Why?



- Environmental protection is good business, and more
- Legacy to future generations
- Our own sense of connection to the living planet
- Pride in our work and in our company

USEPA
Environmental Science Center
Doing the Right Thing

